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nated between litmus paper moistened with distilled water. The acid tracings of the roots were distinct, and there were no soil solutions charged with carbon dioxide present.

A critical examination of the data given in Bulletin No. 22 shows that the conclusion is not consistent with the figures. To illustrate: On page 32 it is stated that a wheat field yielding 35 bushels per acre contained 2.49 parts of PO_4 per million parts of air-dry soil. The most liberal calculations show less than five pounds per acre foot of water-soluble phosphoric acid; accepting the data given as correct, a wheat crop of 35 bushels would remove 40 pounds at least of phosphoric acid. In other words, all of the water-soluble phosphoric acid in this soil to a depth of eight feet by pure physical action alone would not supply this crop with food. To assume that all the water-soluble plant food can possibly be utilized to a depth of eight feet is even an incorrect assumption, because Hellriegel's experiments show conclusively that there is a limit to the capacity of crops for absorbing water.

To assume that a selective process takes place based on physical properties alone and that the plant has the power to take up more water-soluble phosphoric acid than water in which it is dissolved independent of chemical action or solvent power is not correct. Because if such a purely physical action were to take place, the ions of lime, magnesia, etc., forced back into the solution by the withdrawal of the PO_4 ions would make the remaining phosphoric acid less soluble. In fact, purely physical action based upon ionization, as claimed by the authors, would be working *against* the plant instead of aiding it in securing plant food.

Most of the data given in Bulletin No. 22 point to just the opposite conclusions from those drawn. It is stated that there are no material differences in the amounts of water-soluble plant food present in soils producing the largest and the smallest crop yields. The figures in the bulletin conclusively show that on a purely physical basis the rich soils do not contain enough water-soluble plant food to account for all of the mineral matter found

in the crop. There is only one alternative, namely, since the figures show that there is not enough water-soluble plant food to account for all that there is present in the crop, it must be derived from other and insoluble forms. In fact, no better evidence could be given showing such a conclusion to be logical than the tables in Bulletin No. 22. In short, the conclusions are entirely at variance with the tables.

HARRY SNYDER.

AGRICULTURAL EXPERIMENT STATION,
ST. ANTHONY PARK, MINN.

THE EDISON MEDAL.

THROUGH the efforts of an organization known as the Edison Medal Association, a fund has been created to establish a medal to be known as the 'Edison Medal,' and the responsibility of annually awarding it has been entrusted to the American Institute of Electrical Engineers.

The Edison Medal Association was founded by the friends and admirers of the great inventor, and in the language of the deed of gift, 'was organized for the purpose of properly recounting and celebrating the achievements of a quarter of a century in the art of electric lighting, with which the name of Thomas Alva Edison is imperishably identified,' and 'for the establishment of an Edison Medal, which should, during centuries to come, serve as an honorable incentive to the youth of America to maintain by their works the high standard of accomplishment by the illustrious man whose name and features shall live while human intelligence continues to inhabit the world.'

The gift was formally made, and the responsibility of conferring it assumed by the institute at its annual dinner given at the Waldorf-Astoria Hotel in New York, on February 11 last, held to not only commemorate the event, but also to celebrate the fifty-seventh anniversary of Mr. Edison's birth.

The fund has been deposited with the Continental Trust Company of New York, and there will be available this year sufficient funds for a medal, which will be awarded by a suitable committee of the institute, soon to be appointed.

The object of this letter is to attract the attention of the authorities of such institutions as may seem, to such authorities, qualified to compete; and the request is hereby made that all such institutions send, through their proper channels, their names to 'The Edison Medal Committee' of the American Institute of Electrical Engineers, 95 Liberty Street, New York City, on or before June 1, 1904, in order that the committee may have before it the names of all institutions which those in direct authority of them believe qualified to comply with the conditions as set forth in the various sections of the deed of gift, as follows:

Fourth. The Institute shall, so long as the requisite funds accrue from the said investments so to be made by the trust company, annually cause to be executed a gold medal, and shall, through a committee to be duly appointed and authorized by it and known as the Edison Medal Committee, award said medal in accordance with the provisions of this clause.

1. The medal shall be awarded to such qualified student as shall have submitted to the institute, in accordance with the provisions of this deed and of the regulations which may be prescribed by the Edison Medal Committee, the best thesis or record of research on theoretical or applied electricity or magnetism.

2. Each competitor for the medal, in order to be qualified, must have graduated and received a degree during the year for which the medal shall be awarded, in some course of study at some institution of learning in the United States of America or Dominion of Canada, which course of study shall include the branch of electrical engineering. The United States Naval Academy and Military Academy are included within the institutions from which competitors may be qualified.

3. Not more than two students may compete in any one year from any one institution of learning; nor may any student compete, unless duly presented for competition through the faculty of the particular institution at which he is a student.

4. The course of study must be one normally representing not less than two years of continuous residence and work.

5. The thesis or record must not exceed six thousand words, not inclusive of words employed in explanation of accompanying drawings.

6. No competitor shall be of greater age than twenty-five years at the day of his graduation in such course of study.

Fifth. The institute shall, through its Edison Medal Committee, forthwith make such rules and regulations, not inconsistent with any of the provisions or conditions of this deed, as may, in their judgment, assist in the proper execution of the trust herein created. The Edison Medal Committee shall immediately upon making such rules and regulations notify the institutions of learning open to competition, of such provisions of this deed, and of such rules and regulations as may properly be communicated to them, and through them to the students at such institutions.

Sixth. The institute will further, through its Edison Medal Committee, issue to each recipient of the Edison Medal a parchment certificate in such form as may be prescribed by said committee, certifying the name of the person to whom said medal is awarded, the date of such award, and such other facts as may be deemed proper by the committee.

The Edison Medal Committee is being selected from among the members of the institute who are not now connected with educational institutions, but who have the necessary early educational training, and subsequent experience, to enable them to critically analyze and justly determine the merits of the theses offered in the various fields of research. This committee will, after organization, communicate such further information as may be necessary to those institutions whose names have been presented in compliance with this invitation, and it is hoped that prompt response may be received in order that no institution justly entitled to consideration may be overlooked.

BION J. ARNOLD,
President.

AMERICAN INSTITUTE OF
ELECTRICAL ENGINEERS.

SCIENTIFIC NOTES AND NEWS.

At the annual meeting of the American Academy of Arts and Sciences, held on May 11, it was voted, on the recommendation of the Rumford committee, to award the Rumford medals to Professor Ernest Fox Nichols, of Columbia University, for his researches on radiation, particularly on the pressure due to radiation, the heat of the stars and the infrared spectrum.

PROFESSOR EDWARD S. MORSE has been elected a corresponding member of the